Appendix F – Southeast Oregon Resource Management Plan
Wildlife Habitat Descriptions and Considerations

Introduction

Chapter 3 describes the DRFC's for land, resource, and social and economic conditions that are expected to be present on public land in 50 to 100 years if the plan management objectives are achieved. Because the DRFC's are descriptions associated with long term BLM management, they provide limited direction for wildlife habitat assessments and prescriptions over the next 20 years. Due to this limitation, Appendix F has been included here to provide more descriptions of habitat characteristics important to wildlife that will be incorporated into activity plans and evaluated in both the short and long term. The following text will help to explain how BLM intends to:

1) Meet the four general wildlife objectives stated in Table 3-1 regarding upland habitats, riparian habitats, special status species, and bighorn sheep.

2) Meet the quality of wildlife habitat that is implied in the S&G's.

3) Provide a direct link to annual RMP progress, adopt appropriate objectives/terms/conditions in BLM activity plans, and prescribe appropriate activity plan monitoring.

This appendix is not intended to be an exhaustive list of criteria but it does address a wide variety of fundamental wildlife habitat issues in forests and rangelands.

Due to economic and social constraints associated with implementation of the PSEORMP/FEIS, it is assumed that some of these desired conditions and mitigations are not going to be fully attained at all times or in all places on the public land. Where they cannot be fully attained, it is assumed that either wildlife concerns have been outweighed by other resource, social, or economic values, or site potential and other environmental factors such as weeds or frequent fire are preventing their attainment at the present time.

F-1: Wildlife Habitat Security and Disturbances

Security is a fundamental component of wildlife habitat health. Disturbance to habitat security (defined herein as unavoidable or unintended harassment to animals resulting from noise and activity) is known to adversely affect wildlife populations and productivity. Levels of big game winter mortality may increase where human activities cause additional physiological stress to animals already coping with intense cold and wet conditions. For species such as birds, annual recruitment of young may be diminished or eliminated altogether when disturbances occur during the nesting or mating season. Consequently, impacts to animal security during the breeding or wintering season that are caused by disturbance need to be avoided or minimized in BLM authorizations. Generally speaking, disturbances during the summer and fall time period have less potential to inflict serious adverse impacts to wildlife than when they occur during wintering or breeding seasons.

As a general rule, the public can expect that land use authorizations which may impact special status species, raptors, and big game will require some form of mitigation to protect habitat security values. Refer to Table 3-3 for a description of the security protection measures that will be applied to any disturbing activity when needed. Special stipulations not shown in Table 3-3 may be applied for unique circumstances unforeseen in this document.

Security threats to wildlife can originate from a wide range of activities which may include, but are certainly not limited to, OHV use, grazing, minerals exploration or development, recreational use, forest management operations, prescribed fire activities, or actions associated with rights of way. Road locations and densities typically play a very significant and interrelated role in protecting or diminishing wildlife security.

Avoidance or mitigation of disturbing activities can usually be accomplished by prescribing adjustments to the timing, location, or duration of authorized actions. In some instances, project denial may be the only appropriate course of action where resource values are high and mitigation or avoidance cannot reasonably be made. The appropriate measures necessary for the protection of wildlife need to consider the nature of proposed actions, the species affected, and the time of year the action is expected to occur. As described in Table 3-3, exceptions, modifications, and waivers may be applied to proposed actions that affect wildlife.

General wildlife seasons of use for the planning area are as follows:

Winter: Normally begins for most eastern Oregon wildlife by December and ends by early March.

Breeding: Normally begins in early March and extends through the month of June. A few species, such as owls, begin breeding in winter months.

Summer–Fall: Normally begins in July and extends through November.

F-2: Structural Projects

Powerlines should be configured and located according to the best current technical guidance for wildlife mitigation. The intent is to avoid or reduce the potential for instances of electrocution, collision, or avian predation (hunting perches that may affect some species such as sage grouse) or other avoidable adverse impacts. New power-lines should be installed within existing power line corridors whenever possible to limit the number of potential electrocution and collision hazard areas. "Suggested Practices for Raptor Protection on Power Lines" (1996) is one example of several technical references BLM will use to provide protection for raptors.

Fences for livestock grazing administration will be designed to conform to BLM Manual 1737-1 which prescribes wire spacing and types (smooth, barbed, or net types) depending on the wildlife species that occupy a project area. These standards will accommodate most wildlife movements and minimize the risks of injuries or death due to entanglement and collisions. Fence routing needs to mitigate adverse consequences to wildlife especially in migration corridors and big game winter ranges. Proposed fence locations may be adjusted in order to avoid congregation of livestock in important wildlife habitats.

Escape ramps (expanded metal panels) will be installed in all new livestock troughs or installed in concert with scheduled maintenance in order to reduce or eliminate the potential for wildlife entrapment and drowning.

Spring sources developed for the purpose of delivering water into a livestock trough should leave some of the native source flow intact where possible. This will protect endemic molluscs, amphibians, or other wildlife vulnerable to spring dewatering. Exclosure fencing should accompany spring developments to protect wetland vegetation if grazing systems do not allow for the attainment of PFC (see Water Resources and Riparian/Wetland Areas sections of this document). Troughs connected with spring developments should be placed away from riparian and wetland habitats to reduce livestock trampling

damage to wet areas. Trough overflow at springs should be controlled with float valves or else delivered back into the native channel.

Water developments such as reservoirs, pipelines, and guzzlers may benefit some species of wildlife such as antelope, chukar partridge, and bighorn sheep by providing new sources of drinking water. Judgment as to whether developed water will be an overall benefit or detriment to wildlife habitat and populations is dependent upon the area of consideration and the species effected. Maintaining habitats free of new water developments accessible to livestock will normally be considered a beneficial wildlife habitat conservation measure in high quality native range (refer also to F-3).

F-3: Grazing Use Considerations for Upland Habitats

Unless specified with rationale, the following factors would be considered consistent with the protection of most wildlife habitat values in activity plans.

Key area selection for monitoring activity plan performance (effectiveness monitoring) is based on habitat type, land-form, and/or fence locations at reasonable distances from water accessible to livestock or wild horses. One or more key species of wildlife and wildlife seasons of use need to be identified for activity plan evaluation purposes.

1) Grazing systems should incorporate periodic yearlong rest and/or growing season deferment.

2) Key grass forage species on native ranges should be grazed at stocking levels that allow for maintenance or improvement of plant vigor and recruitment of young plants.

3) Native range should be grazed in such a way that a patchy appearance comprised of lightly to moderately grazed and ungrazed areas are prevalent throughout most of the pasture. The rangeland may be topped, skimmed, or grazed substantially in patches. In so doing, a combination of seasonally important habitat values important to wildlife will be present including grazed (conditioned) forage plants and areas with high quality cover and structure (ungrazed or slightly grazed vegetation).

Livestock grazing described as a thorough search (heavy trampling, limited standing herbaceous cover, and uniformly grazed key forage plants) is limited to areas near watering facilities such as troughs and reservoirs. Heavy utilization patterns do not dominate the appearance of the landscape and vegetation structure at the end of the growing season. Most young plants are undamaged subsequent to grazing use and low value herbaceous plants are left ungrazed.

4) TNR livestock grazing use in native range should be avoided to protect forage, cover and structure values for wildlife. Where it is permitted for the attainment of other management objectives, TNR grazing use should conform to the general descriptions under Alternative C and be less than or equal to 40 percent as defined in this document.

5) Native upland range that is not grazed by domestic livestock is a desired wildlife habitat condition. It is generally in limited supply and typically provides very high quality structure and native forage for wildlife use. Maintenance of currently ungrazed native range conditions by avoiding new water developments, salting, and fencing is considered a beneficial mitigating measure for the protection of wildlife habitat values.

6) Crested wheatgrass seedings should be grazed periodically in such a way that spring or fall green-up or conditioned forage is available for Canada geese, big game, or other species. Light use and nonuse by livestock in seedings for long periods of time will diminish green forage values for wildlife because grass

plants become rank and unpalatable.

7) Green-up and conditioned forage: Green-up (new vegetative growth initiated by growing season moisture) is valuable to wildlife because it provides succulent, nutritious, and easily digested forage. Nearly all classes of wildlife from songbirds to big game can be observed consuming green-up whenever and wherever it is available throughout the year. Domestic livestock and wild horses also consume green-up for its palatability and nutritional qualities. The value of green-up for wildlife is highest on habitats used during the spring, winter, or fall.

The nutritious character of spring green-up prepares animals for the physiological demands of breeding activity and therefore it can be directly tied to animal population productivity. Where green-up is available on winter ranges it helps animals to maintain their physiological condition and therefore it can be directly tied to population survival. Where green forage has been unavailable for prolonged periods due to drought or normal summer conditions, it helps to restore overall animal health and therefore it can be tied directly to animal population recovery from cyclic or seasonal stress.

Conditioned forage (areas that have been burned or grazed by livestock) also tends to provide green vegetation that is sought out by wildlife. Consequently, grazing and burning can both be of benefit to wildlife by providing a higher volume and greater availability of succulent, nutritious, and easily digested forage. However, conditioned forage on native range from fires and grazing use is not in limited supply. Consequently, the need for more conditioned forage (resulting from livestock use) to benefit wildlife on native range is quite limited. Moreover, the structural characteristics and values of shrubby cover will need to be carefully weighed before emphasizing the desirability of providing more conditioned forage on public land through prescribed fire (see F-5).

8) Quaking aspen (apart from riparian habitats) and mountain shrub species should exhibit healthy growth forms, structure and plant vigor. Uneven-aged stands of aspen and mountain shrubs should be prevalent and grazing systems should include rotations that allow for seed production and seedling establishment. Grazing systems need to allow for the likelihood of maintaining or improving forage, cover, and structural features important to game and nongame species.

F-4: Grazing Use Considerations for Riparian/Wetland Habitats

At a minimum, grazing use needs to be consistent with providing those conditions which are necessary to promote properly functioning riparian/wetland areas.

There is no single management strategy that will meet all riparian needs for wildlife and there is no single tool for measuring activity plan performance that can be applied in every riparian area. This is because riparian site potential and current conditions are highly variable. The appropriate tool for monitoring activity plan performance is determined by the important wildlife resources present. Specific riparian objectives therefore need to be applied at the activity plan level in light of all these variables.

Where vegetative trend is judged to be inadequate for establishing desired wildlife habitat conditions, a desired plant community (DPC) objective will be used to address wildlife habitat management in riparian areas. Appendix D4, Table D4-1, describes the common indicators of riparian trend and how they will generally be interpreted in evaluations.

Where needed, DPC objectives will address one or more of the following habitat elements important to wildlife:

Systems capable of supporting woody and herbaceous species: age composition, structural characteristics (height, volume, etc.), species distribution and abundance of key woody species. Distribution, composition, and abundance of key herbaceous species including grasses, forbs, sedges, and rushes. Reproductive success and grazing utilization of key herbaceous or woody species

Systems with little or no capability to support woody species: distribution, composition, and abundance of key herbaceous species including grasses, forbs, sedges, and rushes. Reproductive success and grazing utilization of key herbaceous species.

F-5: Management of Vegetation Within Steppe Rangelands Occupied by Sage Grouse and Other Species that use Sagebrush Habitats

General Values of Shrubby and Herbaceous Cover for Wildlife

Wildlife diversity and productivity is profoundly influenced by the relative abundance, structure, and spatial arrangement of sagebrush communities (refer to Chapter 2, Wildlife and Wildlife Habitat, Figure 2-1 SEORMP). Management of sagebrush communities that is appropriate to soil, climate, and landform needs to incorporate the following overstory and understory components which contribute towards healthy wildlife habitats:

> **Shrub overstory:** Big sagebrush, low sagebrush, and other shrubby species within the genus *Artemisia* provide primary sources of wildlife habitat structure, food, and cover.
>
> **Herbaceous understory:** Grasses and forbs provide primary sources of wildlife habitat structure, food and cover. Herbaceous cover also provides indirect food sources for wildlife by supporting the environments that produce insects consumed by birds and other small animals.

Two important tables of habitat information are included in this section that will be used for wildlife habitat evaluation purposes: Table F-1 describes general relationships of wildlife use at various shrub overstory canopy measures; and Table F-2 describes the amount and arrangement of habitat that is desired at mid scales (GMA's) and fine scales (pastures). Used in combination, these two tables will enable BLM to craft a multi-scale monitoring and assessment process that is able to address cumulative effects of management actions and determine whether or not future actions conform to Chapter 3 objectives for wildlife habitat in sagebrush rangelands.

Exceeding the fine scale (pasture level) percents (acreages) of Table F-2 may be necessary in order to compensate for currently fragmented habitats and/or where it is likely that fragmentation will continue due to fire history and frequency. Determining activity plan objectives can only be made after considering existing cover conditions at mid scales and larger, and in light of wildlife survey data. This will be accomplished as a part of the rangeland health assessment process.

Important species of wildlife, in addition to sage grouse, that use big sagebrush habitats are:

Nongame species: sage thrasher, Brewer's sparrow, sage sparrow, black-throated sparrow, gray flycatcher, loggerhead shrike, pygmy rabbit, sagebrush vole.

Game species: mule deer, elk, and pronghorn.

Desired Amounts and Arrangements of Sagebrush Habitats

Structural characteristics and general distribution at mid scales (GMA's): Shrub cover capable of supporting the life history requirements of sage grouse and other wildlife (e.g., Classes 3, 4, and 5 from Table F-1) that use sagebrush habitats should be present at multiple scales, over a large area, and in a variety of spatial arrangements (e.g., at a landscape level and with connectivity present). This should include a central core of sagebrush habitat which is present in large contiguous blocks as well as some other habitat arrangements such as islands, corridors, and mosaic patterns. Each of these patterns have significance to wildlife within geographic areas.

Wildlife objectives for sagebrush communities in individual pastures, allotments, and GMA's will be determined on the basis of factors such as: (1) presence of sage grouse and their seasonal life history needs, (2) existing native shrub cover patterns and characteristics within each GMA, (3) the frequency and reasonably foreseeable likelihood of fire, and (4) locations of seedings and their shrub overstory conditions.

Shrub cover should be present that shows some mix of height and age classes but with an overall emphasis on the presence of communities with shrubs in a mature structural status per Thomas et al. (1984).

Big sagebrush shrub cover on native range at fine scales (pastures): Shrub overstories capable of supporting sage grouse and other species that use sagebrush habitats should be present on at least 50 to 75 percent of the surface acreage of livestock management pastures capable of supporting big sagebrush communities. For example: a 1000-acre native-range pasture that is a Wyoming, mountain, or basin sagebrush type should provide shrub cover capable of supporting sage grouse and other species that use sagebrush habitats on at least 500 to 750 acres (e.g., Classes 3, 4, and 5 from Table F-1).

Big sagebrush shrub cover on seeded range at fine scales (pastures): Shrub overstories capable of supporting sage grouse and other species that use sagebrush habitats should be present on at least 25 to 50 percent of the surface acreage of livestock management pastures capable of supporting a big sagebrush community. For example: a 1000-acre seeded pasture that is a Wyoming, mountain, or basin sagebrush habitat type should provide adequate shrub cover capable of supporting sage grouse and other species that use sagebrush habitats on at least 250 to 500 acres (e.g., Classes 3, 4, and 5 from Table F-1).

Herbaceous understory on native range at fine scales (pastures): Herbaceous understory composition throughout most native range habitats should exhibit multiple species of native forbs and grasses consistent with site potential at mid, late, or PNC seral stages.
1.
Herbaceous understory on seeded range at fine scales (pastures): Herbaceous cover composition in seedings should support one or more adapted forb species.

Big Sagebrush Cover Class Graphic (Figure F-1)

Figure F-1 is an illustration of a fine scale (pasture in an allotment) landscape supporting a sagebrush community complex. The graphic suggests how sagebrush-steppe rangeland can support canopy cover values in each of the five classes (described in detail in Table F-1) and how they can be spatially distributed. Each Table F-1 class has value and contributes towards meeting the yearlong needs of wildlife in terms of food, cover, and structure. ICBEMP science describes similar relationships and values.

Too much Class 1 and 2 or 4 and 5 habitat within a GMA will result in an imbalance in habitat productivity and connectivity for wildlife. An overabundance of Class 1 and 2 is indicative of undesirable conditions for wildlife due to shrub cover fragmentation. Conversely, an overabundance of Class 4 and 5, especially where there is a depleted understory, is indicative of undesirable conditions for wildlife because of limited herbaceous understory productivity (e.g., limited food sources for wildlife provided by herbaceous plants and insects).

In a healthy rangeland that supports multiple resource values, sagebrush canopy cover equal to or greater than 15 percent line intercept values may occur in patches (per ICBEMP) within a community complex that is predominantly a Class 2 or 3 type. Class 4 or 5 types may also be reasonably interpreted as part of the natural complex site variability found in the sagebrush steppe (Miller and Eddleman 2000). In other words Class 4 or 5 types can be a natural product of soil, climate, and landform, and may often occur as transitional areas among Wyoming, Great Basin, and mountain sage shrub communities. Class 4 or 5 types may also be indicative of poor conditions due to grazing disturbance; these areas often support a depleted understory.

Class 4 or 5 types can be high value habitat features of a well connected, biologically diverse sagebrush landscape that is desirable for native, T&E, and locally important species of wildlife; e.g., Standard #5 in the S&G's. There are distinct site potential differences in shrub canopy and understory character that need to be incorporated into the management of Wyoming, basin, and mountain sage communities at the fine scale.

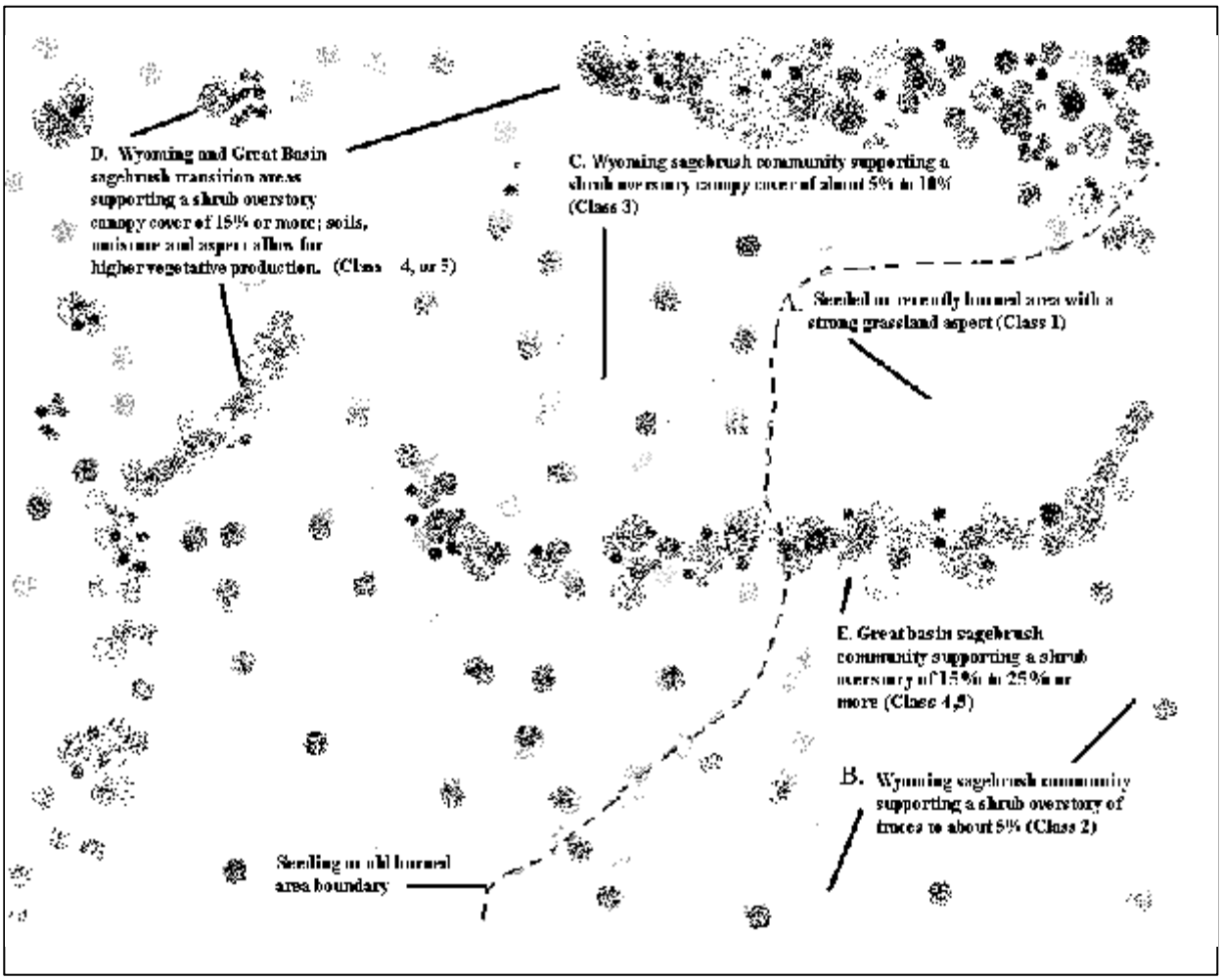

Figure F-1.—*Distribution and variation of big sagebrush cover classes*

2. **Table F-1.—*General habitat relationships of sagebrush canopy cover (as determined by line intercept) and herbaceous understory composition to wildlife habitat values and use (also see Figure F-1)***

Class 1 No sagebrush canopy cover—

Class 1(A): Plant communities that are dominated by native grasses and forbs which generally provide a portion of habitat needs for sage grouse and other wildlife that use sagebrush-steppe habitats. These plant communities are typically observed after fire, before sagebrush species recolonize. These plant communities are desirable to achieve in a patchy, mosaic pattern within the sagebrush-steppe, intermingled with Class 2(A, C), Class 3(A, B, C), Class 4(B), and Class 5(B:25% to near 35% canopy cover) plant communities.

Class 1(B): Plant communities that are dominated by introduced annual grasses and forbs such as cheatgrass, medusahead, and tumblemustard, which do not provide habitat needs for sage grouse and other wildlife that use sagebrush-steppe habitats. These plant communities are not desirable to sustain in their present condition if the sites are capable of supporting a sagebrush plant community(ies). Before converting to annual grasses and annual forbs, these Class 1(B) plant communities were more likely to have been Wyoming big sagebrush or basin big sagebrush plant communities than either low sagebrush or mountain big sagebrush plant communities (Miller and Eddleman 2000). These plant communities are biologically and physically unstable because of high risk for repeated fire. High plant density of these annual plants, combined with great amounts of litter, effectively eliminate biological soil crusts. The combination of these conditions inhibit native plant recovery.

Class 1(C): Plant communities that are dominated by seedings of crested wheatgrass or other exotic perennial grasses which generally do not provide habitat needs for sage grouse and other wildlife that use sagebrush-steppe habitats. These plant communities are lacking in sagebrush canopy cover either because a sagebrush seed source is lacking, or there has not been sufficient time elapsed for sagebrush species to recolonize the seeding. These plant communities are not desirable to sustain in their present condition if the sites are capable of supporting a sagebrush plant community(ies).

Class 1(D): Plant communities that are closed woodlands dominated by species such as western juniper. Particularly in the mountain big sagebrush and low sagebrush plant communities, western juniper encroachment and increasing density can result in near total loss of sagebrush canopy cover (Miller and Eddleman 2000). These Class 1(D) plant communities do not provide habitat needs for sage grouse (sage grouse did not select western juniper communities in central Oregon for nesting or winter habitat [BLM 1994; Miller and Eddleman 2000]) and other wildlife that use sagebrush-steppe habitats. In many of these plant communities, excessive livestock grazing pressure and/or fire suppression have been the main contributors to their formation. These plant communities have depleted herbaceous understories in addition to depleted shrub canopy cover, and could have depleted biological soil crusts if the sites are capable of supporting biological soil crusts. The depletion of the shrub, herbaceous, and biological soil crust cover can result in accelerated erosion on these sites. These plant communities are not desirable to sustain in their present condition if the sites are capable of supporting a sagebrush plant community(ies) and supported a sagebrush plant community(ies) before the western juniper encroached.

Class 2 Trace to 5%—

Class 2(A): Plant communities that are dominated by native grasses and forbs with some recruitment of sagebrush species, which provide a portion of habitat needs for sage grouse and other wildlife that use sagebrush-steppe habi These plant communities are typically observed after fire, when sagebrush species are recolonizing. These plant communities are desirable to achieve in a patchy, mosaic pattern within the sagebrush-steppe, intermingled with Cla 1(A), Class 2(C), Class 3(A, B, C), Class 4 (B), and Class 5(B:25% to near 35% canopy cover) plant communities.

3.

Class 2(B): Plant communities that are dominated by introduced annual grasses and forbs such as cheatgrass, medusahead, and tumblemustard, where sagebrush species are generally declining in abundance attributable to too frequent of fire. These plant communities are typically not providing habitat needs for sage grouse and other wildlif use sagebrush-steppe habitats. These plant communities are not desirable to sustain in their present condition if th are capable of supporting a sagebrush plant community(ies). These plant communities are biologically and physical unstable because of high risk for repeated fire. High plant density of these annual plants, combined with great amou litter, effectively eliminate biological soil crusts. The combination of these conditions inhibit native plant recovery.

Class 2(C): Plant communities that are dominated by seedings of crested wheatgrass or other exotic perennial grass where sagebrush species are in the early stages of recolonization. These plant communities might not be providing complex shrub-grass-forb cover and food needs of sage grouse and other wildlife that use sagebrush-steppe habitat there is active recolonization of sagebrush species, there is high future likelihood for providing habitat needs. Thes communities are desirable to sustain if they are moving successionally to greater abundance of sagebrush species.

Class 2(D): Plant communities that are woodlands dominated by species such as western juniper. Particularly in th mountain big sagebrush and low sagebrush plant communities, western juniper encroachment and increasing densit result in near total loss of sagebrush canopy cover (Miller and Eddleman 2000). These plant communities do not pro habitat needs for sage grouse (sage grouse did not select western juniper communities in central Oregon for nesting winter habitat [BLM 1994; Miller and Eddleman 2000]) and other wildlife that use sagebrush-steppe habitats. In man these Class 2(D) plant communities, excessive livestock grazing pressure and/or fire suppression have been the mai contributors to their formation. These plant communities have depleted herbaceous understories in addition to dep shrub canopy cover, and could have depleted biological soil crusts if the sites are capable of supporting biological s crusts. The depletion of the shrub, herbaceous, and biological soil crust cover can result in accelerated erosion on t sites. These plant communities are not desirable to sustain in their present condition if the sites are capable of supp a sagebrush plant community(ies) and supported a sagebrush plant community(ies) before the western juniper encr

Class 3 Greater than 5%, up to 15%—

Class 3(A): Plant communities supporting low sagebrush or Wyoming big sagebrush, with an understory of native grasses and forbs (typically about 10% grass canopy cover and less than 10% forb canopy cover), and intact biologi crusts in interplant spaces, represent the potential natural vegetation for these plant communities (Miller and Eddle 2000). Class 3(A) low sagebrush or Wyoming big sagebrush plant communities provide habitat needs for sage grou (e.g., winter habitat [Miller and Eddleman 2000]) and other wildlife that use sagebrush-steppe habitat. They are desi to sustain in a patchy, mosaic pattern within the sagebrush-steppe, intermingled with Class 1(A), Class 2(A, C), Clas C), Class 4(B), and Class 5(B:25% to near 35% canopy cover) plant communities.

Class 3(B): Plant communities supporting basin big sagebrush or mountain big sagebrush, with an understory of n grasses and forbs, which are typically moving successionally to greater abundance of sagebrush species and are no the potential natural vegetation for these two plant communities. Despite this, Class 3(B) basin big sagebrush or mo big sagebrush plant communities provide habitat needs for sage grouse and other wildlife that use sagebrush-stepp habitat. Their presence in a mosaic, intermingled with Class 1(A), Class 2(A, C), Class 3(A, C), Class 4(B), and Class 5(B:25% to near 35% canopy cover) plant communities, should be considered desirable for sagebrush-steppe habita should be recognized however, that these Class 3(B) plant communities are probably transitory and should be permi move successionally to Class 4 (see Class 4(B) for more detail).

Class 3(C): Plant communities that are dominated by seedings of crested wheatgrass or other exotic perennial grass where sagebrush canopy cover is on the increase attributable to sagebrush colonization. While not providing the qu habitat that Class 3(A) or Class 3(B) plant communities do, because typically there is not a diverse grass or forb component in these seedings, Class 3(C) plant communities do provide added structure because of the sagebrush, v provides habitat for some wildlife that use sagebrush-steppe habitat.

Class 4 Greater than 15%, up to 25%—

Class 4(A): Plant communities supporting low sagebrush or Wyoming big sagebrush, which typically show a decre native grass and forb canopy cover (particularly where sagebrush canopy cover is 20% or greater [Miller and Eddler 2000]), and biological soil crust development, compared with Class 3(A) low sagebrush or Wyoming big sagebrush communities. Disturbances such as excessive livestock grazing pressure are often contributory to development of C 4(A) plant communities (Miller and Eddleman 2000). Class 4(A) is not the potential natural vegetation, nor a desirabl outcome, for these two plant communities when the inherent capabilities of soils, landform, and climate are factored i However, Class 4(A) plant communities can provide some habitat needs for sage grouse (e.g., winter habitat [Miller Eddleman 2000]) and other wildlife that use sagebrush-steppe habitat.

Class 4(B): Plant communities supporting basin big sagebrush or mountain big sagebrush, with an understory of n grasses and forbs, more often than not represent the potential natural vegetation for these plant communities. Class plant communities provide habitat needs for sage grouse (e.g., nesting and brood-rearing habitat [Miller and Eddlem 2000]) and other wildlife that use sagebrush-steppe habitat. Their presence in a mosaic, intermingled with Class 1(A Class 2(A and C), Class 3(A, B, C), and Class 5(B:25% to near 35% canopy cover) plant communities, should be considered desirable for sagebrush-steppe habitat.

Class 4(C): Plant communities supporting mountain big sagebrush or low sagebrush, with tree seedlings (particular western juniper) in the understory. Particularly in the mountain big sagebrush and low sagebrush plant communities western juniper encroachment and increasing density can result in near total loss of sagebrush canopy cover (Mille Eddleman 2000). These Class 4(C) plant communities currently provide habitat needs for sage grouse and other wild that use sagebrush-steppe habitats. However, with continued growth and increasing density of the western juniper sagebrush will decline and these plant communities will transition and at some point not provide habitat needs for sa grouse and other wildlife that use sagebrush-steppe habitats. On many of these Class 4(C) plant communities, exces livestock grazing pressure and/or fire suppression have been the main contributors to their formation. These plant communities are not desirable to sustain in their present condition if the sites are capable of supporting a sagebrush community(ies) and supported a sagebrush plant community(ies) before the western juniper encroached.

Class 5 Greater than 25%—

Class 5(A): Plant communities supporting basin big sagebrush or mountain big sagebrush, with an understory of na grasses and forbs, can represent the potential natural vegetation for these plant communities, particularly for canopy that ranges from 25% to less than 35% (Miller and Eddleman 2000). However, as sagebrush canopy cover approach 35%, the understory of native grasses and forbs decreases. Class 5(B) basin big sagebrush or mountain big sagebr plant communities can provide habitat needs for sage grouse (e.g., nesting and brood-rearing habitat [Miller and Ed 2000]) and other wildlife that use sagebrush-steppe habitat (e.g., pygmy rabbit). Class 5(B) that has sagebrush canc cover in the range of 25% to less than 35% is probably within the range of what the soils, landform, and climate wou sustain for these two plant communities, whereas canopy cover Class 5(B) that approaches or exceeds 35% in these plant communities is probably undesirable and a result of exc essive livestock grazing pressure and/or fire suppressi

Class 5(B): Plant communities supporting low sagebrush or Wyoming big sagebrush, which typically are depauper understory native grasses and forbs (Miller and Eddleman 2000) and often have an understory composed of exotic a such as cheatgrass and mustards. Understory native grasses, forbs, and biological soil crusts would be primarily re to microsites beneath shrub canopies and would rarely be found in interspace microsites. Disturbances such as exc livestock grazing pressure are often contributory to development of Class 5(A) plant communities (Miller and Eddler 2000). Although these low sagebrush or Wyoming big sagebrush plant communities can provide some habitat need sage grouse (e.g. winter habitat; Miller and Eddleman 2000) and other wildlife that use sagebrush-steppe habitat, the Class 5(A) plant communities are not the potential natural vegetation, nor a desirable outcome, for these two plant communities when the inherent capabilities of soils, landform, and climate are factored in.

F-6: Appropriate Management Actions in Sagebrush Habitats for Meeting Wildlife Habitat Needs

Appropriate management actions (BLM approved mechanical, chemical, biological, or fire-related means) that are consistent with management for wildlife in sagebrush ecosystems include:

1) Restore rangelands that are depleted in structure and plant composition due to past uses, fires, and weed invasions. Restoration with multiple native species is preferable to using introduced species such as crested wheatgrass. However, if native species cannot be established because (1) native seed sources are not available, or (2) intense competition from other undesirable vegetation is very likely to limit the success in establishing natives, then introduced grasses with a shrub component (crested wheatgrass and shrubs) will be considered preferable to taking no rehabilitation action at all. Fire and weed threats to remaining areas of good quality native range need to be reduced or eliminated where possible.

2) Reduce the level of western juniper encroachment into rangeland sites that threaten sage grouse as a result of habitat loss and hunting perches for avian predators. Use mechanical means, rather than fire, where the risk of exacerbating fire cycles associated with invasive species (e.g., cheatgrass) is high.

3) Modify landscape character in monotypic stands of sagebrush where there is reason to believe that such action would enhance wildlife habitat values and not further exacerbate problems associated with fragmentation.

4) Restore habitat complexity, diversity, and structure in at least portions of rangelands currently dominated by monoculture stands of adapted grasses (nonnative). This action is considered appropriate if the area is judged to be of substantial consequence to the connectivity of individual geographic areas and the outcome would benefit critically important wildlife habitats (e.g., areas of concentrated or otherwise highly significant wildlife use).

5) Delay the timing of certain crested wheatgrass retreatments (treatments for the purpose of encouraging more grass production) where the status of sage grouse winter use and breeding activity is uncertain. Prescribe treatments based on documented field survey data that address sage grouse absence or presence.

6) Use cultural practices to establish greenstrips in order to diminish the chances for further loss of quality sagebrush habitats to wildfire. This is especially true for quality sage grouse habitats that adjoin fire prone, cheatgrass-dominated areas.

7) Where necessary, bring livestock utilization levels or seasons of use into conformance with herbaceous cover requirements in sage grouse nesting habitats.

F-7: Western Juniper Woodland Management Considerations

Habitats that support western juniper should provide the following kinds of characteristics important to wildlife:

1) Patches of thermal and hiding cover sufficient to meet the habitat requirements of mule deer and elk.

2) Scattered mature trees suitable for nesting raptors such as ferruginous hawks.

3) Limited juniper presence in rangelands where sage grouse forage and cover values are threatened or where predation by raptors may be affecting limited grouse populations.

4) Maintenance of all large trees (approximately 24 inch diameter measured 1 foot above ground) with nesting/hiding cavities used by various species of small mammals and birds.

5) Downed trees for small animal refugia and big game hiding cover.

6) Vegetation mosaics within project sites so that the result of treatments is approximately 50 percent juniper habitat and 50 percent shrub/grassland habitat. The patch size and layout of cover types resulting from projects (burning or cutting) is dependent upon wildlife that use the area and cover conditions within the geographic area being effected

F-8: Forest Management Considerations

Due to the fact that forested habitat in MRA is on the southern edge of the Blue Mountains, it will be desirable to maintain old growth characteristics wherever they are present. Actions which promote the attainment of old growth character in the long term will be considered beneficial for wildlife habitat values.

Green Tree Replacement (GTR), Snags, and Down Woody Debris in Forested Habitat

There are at least 30 bird and 23 mammal species in the Blue Mountains Region that use snags for nesting or shelter. Sixteen bird species are excavators. At least 179 species of vertebrates (5 amphibians, 9 reptiles, 116 birds, and 49 mammals) make some use of decaying logs.

Snag, green tree replacements for snags (GTR) and down woody debris guidelines are needed to protect wildlife populations at the 60 to 70 percent level. Commercial harvest of large trees and existing tree insect infestations have created shortages in snags and green tree replacements. The harvest of dead/dying trees and fire killed trees could exacerbate snag, GTR, and woody debris deficits. Snags, GTR, and woody debris recommendations at the project level will vary depending upon whether existing forest conditions for wildlife are determined to be (1) desirable, (2) undesirable, or (3) burned.

Both hard and soft snags at approximately equal numbers are required to meet the needs of various birds species for nesting and foraging. The desired snag tree species are fir, larch, and ponderosa pine.

Desirable forest conditions: The desired forest condition has all size green trees with snags, down woody debris, less than 12 percent soil compaction and insects endemic rather then epidemic. Any harvest should leave healthy trees of all size classes and approximate species mix for the site. The following table lists number of trees by sizes to be retained for future snags and number of snags by size classes.

Size	Green tree replacement	Snags [1]
10–12	7	1
13–20	20	3
20 +	6	1
[1] More small trees and snags must be retained if large tree numbers are inadequate.		

Undesirable forest conditions: GTR and snags may be difficult to maintain at desired levels. Healthy green trees may not be available in all size classes, species mixes, or poorly distributed over the land base. Also, snag distribution, size classes and species mixes may be deficient. The target for snags and GTR is the same as in a healthy forest, but not all green trees saved may be healthy.

Burned forest conditions: As few or no green trees may be available, snags or dead trees must be preserved at a higher level than in a desirable forest condition. Large snags are the habitat element that will be deficient over time as the young forest is reestablished. Four snags/acre over 20 inches dbh should be maintained as snags will begin to fall at approximately 10 years. Eventually this will leave a deficit of large snags. The small snags would be replaced in approximately 40 years as the new forest is regenerated. Large snags will be missing from 10 to 120 years or more.

Western juniper: Care must be taken not to substitute juniper for pine and larch when addressing species such as pileated and black-backed woodpeckers.

Grand fir: Other snag elements to consider are green grand fir trees over 25 inches that have hollow centers. If these trees have a broken top exposing the hollow center, they are even more valuable. Numerous birds and mammals use these broke-top snags for nesting, roosting, and winter hibernation. These trees are not distributed across the landscape, as many have already been cut. Because many wildlife species use these trees, most or all large green-cull fir trees should be saved.

Snag Location and Distribution

Snags should be distributed evenly across the landscape to provide optimum habitat. As snag levels are not evenly distributed, snag numbers should be averaged and monitored on 40-acre patches.

If possible, snags should be located where land relief will give protection from prevailing winds. Snags can be grouped within these protection areas and averaged over a 40-acre parcel. Solitary snags need to be left where they can be retained. Solitary snags are very important as the create the down woody material needed over the landscape, and some birds prefer open land for foraging, especially the flycatchers.

Snags can be created if a surplus of green trees are available. If surplus green trees are not available, it is recommended not to sacrifice green trees as this will lengthen the time period for future snag recruitment.

Down Woody Debris

Current research indicates that 10 logs/acre or 10 tons/acre is a minimum. Down woody debris provides nutrient capital, water economy, soil organic reserves, structural component, and plant and animal habitat.

Treatment of Ant Hills

Ants are a primary predator of many forest insects. Ant hills should be protected from logging, controlled fire, etc.

F-9: Bighorn Sheep Guidelines

Management pertaining to bighorn sheep, domestic sheep, and goats is specified within the BLM "Revised Guidelines for Management of Domestic Sheep and Goats in Native Wild Sheep Habitats" (1997). These guidelines, which may be modified by agreement among the parties involved, will be reviewed at least every 5 years by a work group of representatives from the livestock industry, State wildlife agencies, BLM, and native wild sheep organizations.

F-10: Calculation of Big Game Forage Demand

Big game numbers used to set forage demand in this plan were supplied by the State of Oregon, Department of Fish and Wildlife, and are based on State-approved management objectives (MO's) and benchmark levels by seasons of use and grazing allotment.

Adhering to the descriptions of grazing use in F-3 of this section would allow BLM to meet upland wildlife forage needs within the the planning area. Conflicts regarding forage availability for wildlife will be addressed on a case basis within periodic rangeland health evaluations. Evaluations may disclose the need for an allotment-specific wildlife forage allocation where desired conditions described under upland utilization are not being met.

Bighorn sheep forage demand was not calculated in Appendix E. Specific locations of bighorn use at the pasture level throughout the plan area was not possible. Nevertheless, bighorn forage will be considered in the course of evaluations similar to pronghorn, deer, and elk.

Big game forage demand in Appendix E, Allotment Summaries, was established by using the three mathematical calculations described below. These calculations are consistent with the "Three Rivers Resource Management Plan" (1991) in Burns District, and they use locally adapted studies on dietary overlap cited in Vavra and Sneva (1978).

Mathematical Calculations Used for Determining Wildlife Forage Demand

1) Land ownership differences: The percentage of the grazing allotment administered by BLM was multiplied by the MO/benchmark number to determine the number of big game supported on public land versus other ownerships such as state or private.

2) Body mass differences: The number of big game at MO/benchmark levels supported on BLM lands was then divided by a factor of 5.3 (for deer), 7.0 (for pronghorn), and 2.4 (for elk) to determine the number of each species that would potentially consume forage equal to one AUM, which is defined as 800 pounds of air dry forage. (The figure derived from this calculation is referred to as the unadjusted forage demand because it does not factor the dietary differences between livestock and big game.)

3) Dietary preference differences: The unadjusted forage demand was then multiplied by factors of 0.18 for deer, 0.10 for antelope, and 0.70 for elk to reflect the differences in forage preferences between livestock and big game (this figure is referred to as the adjusted forage demand). *For example*: The adjusted big game forage demand (sometimes referred to as the competitive AUM's) needed to support 50 mule deer on an allotment with 80 percent public land over a period of 12 months would be 86.4 AUM's [50 deer $\times$ 12 months $\times$ 18 percent dietary overlap $\times$ 80 percent public land].